WHAT IS CLAIMED IS:

SUB A32

1. An image forming process for an electrophotographic system employing an image forming apparatus equipped with a photosensitive member having a photoconductive layer composed of a silicon-based non-monocrystalline material and a surface layer composed of a non-monocrystalline material formed on a peripheral face of a cylindrical electroconductive substrate, and a cylindrical intermediate image-transfer member in contact with the photosensitive member at the surface thereof, and rotating the photosensitive member and the intermediate image-transfer member at a prescribed relative speed;

the process comprising an electrifying step of electrifying a surface of the photosensitive member,

a latent image-forming step of forming an electrostatic latent image by projection of light onto the surface electrified in the electrifying step,

a developing step for forming a toner image by deposition of a toner on the surface carrying the electrostatic latent image formed by the latent image-forming step,

and an image transferring step for transferring the toner image formed in the developing step onto the intermediate image transfer member; and

repeating the electrifying step, the latent image-forming step, the developing step, and the transferring

step plural times to form plural toner images in superposition on the intermediate image transfer member, and transferring the toner images formed in superposition on the intermediate image-transfer member onto a recording sheet,

wherein the photosensitive member and the intermediate image-transfer member are brought into contact at a contact temperature ranging from 15°C to 60°C at an intended relative speed of the photosensitive member to the intermediate image-transfer member to give a kinetic frictional deviation (a standard deviation of kinetic frictional force) less than the average value of the kinetic frictional force.

2. The image forming process according to claim 1, wherein a kinetic frictional deviation factor is not higher than 0.1, where the kinetic frictional deviation factor is a rate of change of the kinetic frictional deviation per unit length in length direction of the contact face to the contacting linear pressure, and the contacting linear pressure is defined as the force applied to contact the photosensitive member with the intermediate image-transfer member per unit length in the length direction of the contact face.

3. The image forming process according to claim 1, wherein the range of variation of the kinetic

frictional deviation factor is not more than 0.02 for change of the contact temperature of the photosensitive member with the intermediate image-transfer member from 15°C to 60°C.

4. The image forming process according to claim 1, wherein the surface layer is composed of a non-monocrystalline material based on at least one of silicon and carbon, and the range of variation of the kinetic frictional deviation factor is not more than 0.01 for change of the contact temperature of the photosensitive member with the intermediate image-transfer member from 15°C to 60°C.

5. The image forming process according to claim 1, wherein a rate of change of a dark portion-electrifying ability to temperature change ranges within ±2%/°C.

6. The image forming process according to claim 5, wherein the characteristic energy in exponential energy distribution of a tail level of a valence band ranges from 50 to 70 meV.

7. The image forming process according to claim 1, wherein a center-line average roughness according to JIS of the surface of the photosensitive member ranges

from 0.01 to 0.9 μm, and the average inclination Δa defined by Equation below ranges from 0.001 to 0.06:

$$\Delta a = \frac{1}{l}\int_0^l \left|\frac{dy}{dx}\right| dx$$

where y is a height in Y direction at a point x of a curve extending in X direction.

8. An image forming process for an electrophotographic system employing an image forming apparatus equipped with plural photosensitive members having respectively a photoconductive layer composed of a silicon-based non-monocrystalline material and a surface layer composed of a non-monocrystalline material formed on a peripheral face of a cylindrical electroconductive substrate, and an image-transferring belt for holding and delivering a recording sheet with successive contact with the surfaces of the plural photosensitive members, and moving the photosensitive member and the recording sheet prescribed relative speed;

the process comprising an electrifying step of electrifying a surface of one of the photosensitive members,

a latent image-forming step of forming an electrostatic latent image by projection of light onto the surface electrified in the electrifying step,

a developing step for forming a toner image by deposition of a toner on the surface carrying the electrostatic latent image formed by the latent image-forming step,

and an image transferring step for transferring the toner image formed in the developing step onto the recording sheet; and

repeating the electrifying step, the latent image-forming step, the developing step, and the transferring step for the respective plural photosensitive members to form plural toner images in superposition on the recording sheet,

wherein the photosensitive member and the recording sheet are brought into contact at a contact temperature ranging from 15°C to 60°C at an intended relative speed of the photosensitive member to the recording sheet to give a kinetic frictional deviation (a standard deviation of kinetic frictional force) less than the average value of the kinetic frictional force.

9. The image forming process according to claim 8, wherein a kinetic frictional deviation factor is not higher than 0.1, where the kinetic frictional deviation factor is a rate of change of the ratio of the kinetic frictional deviation per unit length in length direction of the contact face to the contacting linear pressure, and the contacting linear pressure is defined

as the force applied to contact the photosensitive member with the recording sheet per unit length in the length direction of the contact face.

10. The image forming process according to claim 8, wherein the range of variation of the kinetic frictional deviation factor is not more than 0.02 for change of the contact temperature of the photosensitive member with the recording sheet from 15°C to 60°C.

11. The image forming process according to claim 8, wherein the surface layer is composed of a non-monocrystalline material based on at least one of silicon and carbon, and the range of variation of the kinetic frictional deviation factor is not more than 0.01 for change of the contact temperature of the photosensitive member with the intermediate image-transfer member from 15°C to 60°C.

12. The image forming process according to claim 8, wherein a rate of change of a dark portion-electrifying ability to temperature change ranges within ±2%/°C.

13. The image forming process according to claim 12, wherein the characteristic energy in exponential energy distribution of a tail level of a valence band

ranges from 50 to 70 meV.

14. The image forming process according to claim 8, wherein a center-line average roughness according to JIS of the surface of the photosensitive member ranges from 0.01 to 0.9 μm, and the average inclination Δa defined by Equation below ranges from 0.001 to 0.06:

$$\Delta a = \frac{1}{l}\int_0^l \left|\frac{dy}{dx}\right| dx$$

where y is a height in Y direction at a point x of a curve extending in X direction.

15. A photosensitive member employed in an electrophotographic image forming apparatus for forming an electrostatic latent image by uniform electrification of the surface thereof and projection of imaging light, depositing a toner on the electrostatic latent image to form a toner image, and transferring the toner image onto an image-receiving member, wherein the photosensitive member has a photoconductive layer composed of a silicon-based non-monocrystalline material and a surface layer composed of a non-monocrystalline material, and has a surface which gives a kinetic frictional deviation (a standard deviation of kinetic frictional force) less than the average value of the kinetic frictional force between

the photosensitive member and the image-receiving member when the photosensitive member and the image-receiving member is brought into contact at a contact temperature ranging from 15°C to 60°C at an intended relative speed of the photosensitive member to the image-receiving member.

16. The photosensitive member according to claim 15, wherein a kinetic frictional deviation factor is not higher than 0.1, where the kinetic frictional deviation factor is a rate of change of the kinetic frictional deviation per unit length in length direction of the contact face to the contacting linear pressure, and the contacting linear pressure is defined as the force applied to contact the photosensitive member with the intermediate image-receiving member per unit length in the length direction of the contact face.

17. The photosensitive member according to claim 15, wherein the range of variation of the kinetic frictional deviation factor is not more than 0.02 for change of the contact temperature of the photosensitive member with the intermediate image-transfer member from 15°C to 60°C.

18. The photosensitive member according to claim

15, wherein the surface layer is composed of a non-monocrystalline material based on at least one of silicon and carbon, and the range of variation of the kinetic frictional deviation factor is not more than 0.01 for change of the contact temperature of the photosensitive member with the intermediate image-transfer member from 15°C to 60°C.

19. The photosensitive member according to claim 15, wherein a rate of change of a dark portion-electrifying ability to temperature change ranges within ±2%/°C.

20. The photosensitive member according to claim 19, wherein the characteristic energy in exponential energy distribution of a tail level of a valence band ranges from 50 to 70 meV.

21. The photosensitive member according to claim 15, wherein a center-line average roughness according to JIS of the surface of the photosensitive member ranges from 0.01 to 0.9 μm, and the average inclination Δa defined by Equation below ranges from 0.001 to 0.06:

$$\Delta a = \frac{1}{l}\int_0^l \left|\frac{dy}{dx}\right| dx$$

where y is a height in Y direction at a point x of a curve extending in X direction.

22. An image forming apparatus comprising a photosensitive member having a photoconductive layer composed of a silicon-based non-monocrystalline material and a surface layer composed of a non-monocrystalline material formed on a peripheral surface of a cylindrical electroconductive substrate, an electrifier for electrifying the surface of the photosensitive member, an imaging light projecting means for projecting imaging light onto the electrified surface to form a latent image thereon, a developing means for applying a toner onto the surface having the electrostatic latent image to form a toner image, and an intermediate image-transfer member in a cylinder shape placed to be in contact with the photosensitive member at the surfaces,
wherein the image forming apparatus conducts image formation according to the image forming process as set forth in claim 1.

23. An image forming apparatus comprising plural photosensitive members having respectively a photoconductive layer composed of a silicon-based non-monocrystalline material and a surface layer composed of a non-monocrystalline material formed on a

peripheral surface of a cylindrical electroconductive substrate, electrifiers for electrifying the surface of the photosensitive member, imaging light projecting means for projecting imaging light onto the electrified surface to form a latent image thereon, developing means for applying a toner onto the surface having the electrostatic latent image to form a toner image, and an image-transferring belt for holding and delivering a recording sheet with successive contact with the surfaces of the plural photosensitive members, wherein the image forming apparatus conducts image formation according to the image forming process as set forth in claim 8.

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